CLAIMS

What is claimed is:

1. A signaling method comprising: producing an OFDM symbol (609); transforming the OFDM symbol to produce an OFDM signal (611); and processing (615, 617) the OFDM signal to produce a radio frequency signal that occupies multiple sub-bands within a transmission band from about 3200MHz to about 10300MHz, each sub-band having a bandwidth of about 500MHz.

2. The method of claim 1, wherein processing the OFDM signal comprises: upsampling the OFDM signal to produce an upsampled OFDM signal; applying a pseudo-random code to the upsampled OFDM signal to produce a coded OFDM signal; and upconverting the coded OFDM signal to produce a radio frequency signal.

3. The method of claim 1, wherein the radio frequency signal occupies multiple ones of the following sub-bands: a first sub-band from about 3200MHz to about 3700MHz; a second sub-band from about 4000MHz to about 4200MHz; and a third sub-band from about 4200MHz to about 4800MHz.

4. The method of claim 1, wherein processing the OFDM signal comprises: upconverting the OFDM signal to produce a radio frequency signal; wherein the radio frequency signal occupies multiple ones of the following sub-bands: a first sub-band from about 3200MHz to about 3700MHz; a second sub-band from about 4000MHz to about 4200MHz; and a third sub-band from about 4200MHz to about 4800MHz.

5. The method of claim 1, comprising: producing a sequence of N consecutive identical OFDM symbols; and transforming the OFDM symbols to produce corresponding OFDM signals; wherein processing the OFDM signal comprises upconverting the coded OFDM signal to produce a radio frequency signal that occupies N sub-bands of the transmission band.

6. A radio communication system comprising: means for processing a communications signal that occupies multiple sub-bands within a transmission bandwidth of about 1500MHz, each sub-band having a bandwidth of about 500MHz; and means for processing an OFDM symbol, including at least one of: inverse transform means (311) for transforming an OFDM symbol to produce an OFDM signal, said means for processing a signal processing the OFDM signal to produce a radio frequency signal; and forward transform means (440) for transforming an OFDM signal to produce an OFDM symbol,

said means for processing a signal processing a baseband signal to produce the OFDM signal.

7. The apparatus of claim 6, wherein the radio frequency signal occupies multiple ones of the following sub-bands: a first sub-band from about 3200MHz to about 3700MHz; a second sub-band from about 4000MHz to about 4200MHz; and a third sub-band from about 4200MHz to about 4800MHz.

8. The apparatus of claim 6, comprising: forward transform means for transforming an OFDM signal to produce an OFDM symbol, said means for processing a signal processing a baseband signal to produce the OFDM signal; and means for selecting a subset of the multiple sub-band and for receiving the radio frequency signal within the subset of sub-bands to produce the baseband signal.

9. The apparatus of claim 6, comprising: forward transform means for transforming an OFDM signal to produce an OFDM symbol, said means for processing a signal processing a baseband signal to produce the OFDM signal; and means for receiving the radio frequency signal within multiple sub-bands and non-coherently combining signals from the multiple sub-bands to produce the baseband signal.

10. The apparatus of claim 6, comprising: forward transform means for transforming an OFDM signal to produce an OFDM symbol, said means for processing a signal processing a baseband signal to produce the OFDM signal; and means for sampling the radio frequency signal within multiple sub-bands to produce the baseband signal, at a comparatively high sampling rate compared to a sampling rate for sampling the radio frequency signal within a single sub-band; wherein the OFDM signal transformed by the forward transform means is a column vector of complex values, the column vector being of a comparatively large size compared to a size for representing a single sub-band.

11. The apparatus of claim 10, comprising: means for decomposing the column vector into multiple smaller column vectors and for applying the multiple smaller column vectors sequentially in time to the forward transform means.

12. The apparatus of claim 11, wherein the number of smaller column vectors is equal to the number of multiple sub-bands.

13. The apparatus of claim 6, comprising: means for repeating OFDM symbols such that, at least during one mode of operation, each OFDM symbol occurs as part of a sequence of N identical OFDM symbols.

14. The apparatus of claim 13, wherein N is equal to the number of multiple sub-bands.